CONTENTS

Number 1

C. Bloomfield. The Oxidation of Iron Sulphides in Soils in Relation to the Formation of Acid Sulphate Soils, and of Ochre Deposits in Field Drains . 1
Pa Ho Hsu *and* Stephen E. Ragone. Ageing of Hydrolysed Iron (III) Solutions 17
O. Ciftcioglu, D. A. Byatt, *and* D. Taylor. Determination of Moisture Content with a Gamma Backscatter Density Gauge 32
J. H. Steward and J. M. Oades. The Determination of Organic Phosphorus in Soils 38
R. S. Swift *and* A. M. Posner. Nitrogen, Phosphorus, and Sulphur Contents of Humic Acids Fractionated with Respect to Molecular Weight . . 50
L. P. White. A New Technique for Soil Pit Illustrations. 58
(The late) J. M. Norris. The Application of Multivariate Analysis to Soil Studies. III. Soil Variation 62
M. E. Probert *and* S. Larsen. The Kinetics of Heterogeneous Isotopic Exchange 76
P. H. Nye. The Measurement and Mechanism of Ion Diffusion in Soils. VIII. A Theory for the Propagation of Changes of pH in Soils . . 82
B. D. Soane, D. J. Campbell, *and* S. M. Herkes. The Characterization of Some Scottish Arable Topsoils by Agricultural and Engineering Methods . 93
C. H. Obihara *and* E. W. Russell. Specific Adsorption of Silicate and Phosphate by Soils 105

Number 2

M. J. Jones *and* J. W. Parsons. The Effect of Soil Factors on the Extraction of Soil Organic Matter by Anhydrous Formic Acid 119
M. J. Jones *and* J. W. Parsons. The Nature of the Nitrogen Compounds in Soil Organic Matter Extracted by Anhydrous Formic Acid . . 128
R. G. Barber *and* D. L. Rowell. Charge Distribution and the Cation Exchange Capacity of an Iron-Rich Kaolinitic Soil 135
D. L. Mokma, J. K. Syers, M. L. Jackson, R. N. Clayton *and* R. W. Rex. Aeolian Additions to Soils and Sediments in the South Pacific Area . 147
S. Sivasubramaniam *and* O. Talibudeen. Potassium–Aluminium Exchange in Acid Soils. I. Kinetics 163
F. J. Hingston, A. M. Posner, *and* J. P. Quirk. Anion Adsorption by Goethite and Gibbsite. I. The Role of the Proton in Determining Adsorption Envelopes 177
A. W. Moore, J. S. Russell, *and* W. T. Ward. Numerical Analysis of Soils: A Comparison of Three Soil Profile Models with Field Classification 193
R. Webster *and* P. A. Burrough. Computer-Based Soil Mapping of Small Areas from Sample Data. I. Multivariate Classification and Ordination . 210
R. Webster *and* P. A. Burrough. Computer-Based Soil Mapping of Small Areas from Sample Data. II. Classification Smoothing 222
A. Kesseba, J. R. Pitblado, *and* A. P. Uriyo. Trends of Soil Classification in Tanzania. I. The Experimental use of the 7th Approximation . . 235
V. Novák. Hysteresis of Flux–Gradient Relations for Saturated Flow of Water through Clay Materials 248

CONTENTS (*continued*)

Number 3

I. K. Iskandar *and* J. K. Syers. Metal-Complex Formation by Lichen Compounds 255
S. Western. The Classification of Arid Zone Soils. I. An Approach to the Classification of Arid Zone Soils using Depositional Features . . . 266
S. Western. The Classification of Arid Zone Soils. II. The Classification of Sedosols in South Arabia 279
D. F. Ball *and* Mrs. P. Beaumont. Vertical Distribution of Extractable Iron and Aluminium in Soil Profiles from a Brown Earth–Peaty Podzol Association 298
R. Miedema *and* S. Slager. Micromorphological Quantification of Clay Illuviation 309
A. Wild. Nitrate Leaching under Bare Fallow at a Site in Northern Nigeria 315
A. van Wambeke. Mathematical Expression of Eluviation–Illuviation Processes and the Computation of the Effects of Clay Migration in Homogeneous Soil Parent Materials 325
A. M. Posner *and* J. M. Creeth. A Study of Humic Acid by Equilibrium Ultracentrifugation 333
R. S. Cameron, R. S. Swift, B. K. Thornton, *and* A. M. Posner. Calibration of Gel Permeation Chromatography Materials for use with Humic Acid . 342
George Pavlakis *and* Laing Barden. Hysteresis in the Moisture Characteristics of Clay Soil 350

Number 4

A. J. Low. The Effect of Cultivation on the Structure and other Physical Characteristics of Grassland and Arable Soils (1945–1970) 363
R. S. Swift *and* A. M. Posner. Autoxidation of Humic Acid under Alkaline Conditions 381
R. S. Cameron, B. K. Thornton, R. S. Swift, *and* A. M. Posner. Molecular Weight and Shape of Humic Acid from Sedimentation and Diffusion Measurements on Fractionated Extracts 394
Pa Ho Hsu. Nucleation, Polymerization, and Precipitation of FeOOH . 409
M. V. Cheshire, H. Shepherd, A. H. Knight, *and* C. M. Mundie. Determination of ^{14}C in Soil by a Gel Suspension Method 420
M. V. Cheshire *and* P. A. Cranwell. Electron-Spin Resonance of Humic Acids from Cultivated Soils 424
J. D. Pidgeon. The Measurement and Prediction of Available Water Capacity of Ferrallitic Soils in Uganda 431
D. L. Rowell *and* P. J. Dillon. Migration and Aggregation of Na and Ca Clays by the Freezing and Thawing of Dispersed and Flocculated Suspensions 442
P. F. Davis *and* A. R. Dexter. Two Methods for Quantitative Description of Soil Particle Shape 448
O. Talibudeen *and* A. H. Weir. Potassium Reserves in a 'Harwell' Series Soil 456
J. R. Archer *and* P. D. Smith. The Relation Between Bulk Density, Available Water Capacity, and Air Capacity of Soils 475
G. D. Towner *and* E. C. Childs. The Mechanical Strength of Unsaturated Porous Granular Material 481
M. Visvalingam *and* J. D. Tandy. The Neutron Method for Measuring Soil Moisture Content—A Review 499